

**NIBIB/DOE
WORKSHOP ON BIOMEDICAL
APPLICATIONS OF NANOTECHNOLOGY**

March 17-18, 2005

**Hyatt Regency Bethesda
Bethesda, Maryland**

AGENDA

Oral presentations will be in the Waterford-LaLique Rooms.
Poster displays will be in the Haverford-Baccarat Rooms.

Thursday, March 17, 2005

- 7:30 a.m. **Registration, Poster Setup, and Light Refreshments**
- 8:15 a.m. **Welcome and Orientation**
Chairs: Peter Kirchner (DHHS/NIH/NIBIB) and Richard Swaja (DHHS/NIH/NIBIB)
Belinda Seto, Deputy Director (DHHS/NIH/NIBIB)
Ari Patrinos (DOE/OBER)
John Miller (DOE/OBES)
- 8:45 a.m. **Keynote Address: Perspectives on Biomedical Applications of Nanotechnology**
Jeff Schloss (DHHS/NIH/NHGRI)
- 9:30 a.m. **Overview of DOE Nanotechnology Centers**
James Roberto (DOE/ORNL)
- 10:00 a.m. **Break**
- 10:30 a.m. **NIH Programs and Opportunities for Nanotechnology**
Chairs: William Heetderks (DHHS/NIH/NIBIB) and Michael Viola (DOE)
Gregory Downing (DHHS/NIH/NCI)
Peter Moy (DHHS/NIH/NIBIB)
David Balshaw (DHHS/NIH/NIEHS)
Bishow Adhikari (DHHS/NIH/NHLBI)
- 11:50 a.m. **Working Lunch (Participants get lunches.)**

- 12:00 Noon **Luncheon Presentation: National Nanotechnology Initiative—
Status and Directions**
Clayton Teague (DOC/NIST/NNCO)
- 1:00 p.m. **Resources for Bionanotechnology—1**
Chairs: Eleni Kousvelari (DHHS/NIH/NIDCR) and John Miller (DOE)
Michael Simpson (DOE/ORNL)
Eric Isaacs (DOE/ANL)
Robert Hwang (DOE/BNL)
Mark Alper (DOE/LBNL)
Terry Michalske (DOE/SNL) and Antoinette Taylor (DOE/LANL)
- 2:50 p.m. **Break**
- 3:15 p.m. **Resources for Bionanotechnology—2**
Chairs: Peter Moy (DHHS/NIH/NIBIB) and Arvind Kini (DOE)
James De Yoreo (DOE/LLNL)
Dan Gaspar (DOE/PNL)
Michael Postek (DOC/NIST)
- 4:15 p.m. **Biomedical Applications of Nanotechnology—1**
Chairs: Peter Moy (DHHS/NIH/NIBIB) and Arvind Kini (DOE)
- Electron Nanoprobe Analysis of Biological Structures
Richard Leapman (DHHS/NIH/OD/ORS)
- Three-Dimensional Biological Electron Microscopy at Molecular Resolution
Sriram Subramaniam (DHHS/NIH/NCI)
- Applications of Nanophotonics to Biology and Medicine
Chad Talley (DOE/LLNL)
- 5:00 p.m. **Poster Session and Reception**
- 7:00 p.m. **Adjournment and Poster Removal**

Friday, March 18, 2005

- 7:30 a.m. **Light Refreshments**
- 8:00 a.m. **The Artificial Retina Project—A Working Collaboration**
Michael Viola (DOE/OBER)

8:30 a.m.

Biomedical Applications of Nanotechnology—2

Chairs: Angela Hight-Walker (DOC/NIST) and John Miller (DOE)

Cell Mimics Created From the Controlled Synthesis and Directed Assembly
of Carbon Nanofibers

Mitchel Doktycz (DOE/ORNL)

Elucidating Structure-Function Relationships of Transmembrane Nanopore
Toxins: Mechanisms of Action and New Applications

John Kasianowicz (DOC/NIST)

The Application of Nanotechnology to Clinical Diagnosis

Terry Phillips (DHHS/NIH/OD/ORS)

Magnetic Virus

Lee Makowski (DOE/ANL)

The Application of Nanotechnology to Malaria Research

James Dvorak (DHHS/NIH/NIAD)

Multimodality Nanoparticles as Imaging Reagents for Antibody-Based
Therapeutics

Fanqing Chen (DOE/LBNL)

10:00 a.m.

Break

10:30 a.m.

Biomedical Applications of Nanotechnology—3

*Chairs: Christine Kelley (DHHS/NIH/NIBIB) and Michael Postek
(DOC/NIST)*

Nanomechanics: Stretching the Limits

Kuan Wang (DHHS/NIH/NIAMS)

Optical Manipulation of Nanocontainers and Nanotubes for Biotechnology

Kristian Hermerson (DOC/NIST)

Naturally Occurring Fluorescent Ceramic Bioimaging Probes

Timothy Boyle (DOE/SNL)

Nanostructured Stimuli-Responsive Hydrogels for Biomedical Applications

Anna Gutowska (DOE/PNL)

Evaluating the Safety of Materials Produced Through
Nanotechnology: A Big Issue in a Small World

Nigel Walker (DHHS/NIH/NIEHS)

A Human Cytotoxicity Model for Testing Nanomaterials

Barbara Panessa-Warren (DOE/BNL)

12:00 Noon

Summary and Discussion

Chairs: Peter Kirchner (DHHS/NIH/NIBIB) and Richard Swaja (DHHS/NIH/NIBIB)

12:30 p.m.

Adjournment